



2021 国际数学与统计学青年学者藕舫论坛

2021 Oufang Forum for International Young Scholars  
in Mathematics and Statistics

(2021.12.1—12.2, Online via Tencent / Voov Meeting)

# Program



主办单位:

南京信息工程大学 (NUIST)

江苏省工业与应用数学学会 (JSIAM)

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## Announcement

### 2021 Oufang Forum for International Young Scholars in Mathematics and Statistics

The **Nanjing University of Information Science and Technology (NUIST)** is proud to announce that we will be hosting the **2021 Oufang Forum for International Young Scholars in Mathematics and Statistics**. This symposium will provide an international forum for interdisciplinary experts to present their latest research findings, share innovative ideas, identify challenges and opportunities, and promote international collaborations in the mathematical and statistical research areas. It will also provide an excellent opportunity for young researchers and students to interact with our leading scientists and learn hands-on research experience in these fields.

This international symposium is jointly hosted by **Nanjing University of Information Science and Technology**, and **Jiangsu Society for Industrial and Applied Mathematics (JSIAM)**. It is one of the important activities of the overseas young scholars forum of Nanjing University of Information Science and Technology, and will be held from Dec 1 to Dec 2 virtually online.

#### ▪ **Invited Speakers (in order of the talks)**

Pierre Auger, French Academy of Sciences, France; Nanjing University of Information Science and Technology, China

#### ▪ **Numerical mathematics**

Yavar Khedmati, University of Mohaghegh Ardabili, Iran

Usman Malik, University of Science and Technology Beijing, China

Muhammad Hamid, Fudan University, China

Anum Shafiq, Nanjing University of Information Science and Technology, China

#### ▪ **Statistics**

Liang Dong (董梁), University of Science and Technology of China, China

Lidan He (何丽丹), Nanjing University of Information Science and Technology, China

Jun Jin (金君), South Western University of Finance and Economics, China

Ting Zhang (张婷), Nanjing University of Information Science and Technology, China

#### ▪ **Pure and applied mathematics**

Rasool Hafezi, IPM-Isfahan Branch, Iran

Matthew Randall, Nanjing University of Information Science and Technology, China

Jae Min Lee, Nanjing University of Information Science and Technology, China

Kai Yang (杨开), Florida International University, USA

Yan Li (李琰), Nanjing University of Information Science and Technology, China

## ■ Registration

There is no registration fee for this online forum.

Registration Method: please use the following WeChat App

<http://p.baominggongju.com/share.html?eid=61a5e8d41ce87f1e7620eb49>



## ■ Contact Information

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## ■ Sponsors

Nanjing University of Information Science and Technology (NUIST), China

Jiangsu Society for Industrial and Applied Mathematics (JSIAM), China

## Schedule

2021 国际数学与统计学青年学者藕舫论坛

### 2021 Oufang Forum for International Young Scholars in Mathematics and Statistics

(2021.12.1—12.2, online via Tencent / Voov Meeting)

<b>Dec 1<sup>st</sup>, 2021 (Numerical mathematics)</b> <b>From 15:00 China to 17:30 China</b> <b>(Tencent / Voov Meeting ID: 914-888-145)</b>				
15:00-15:10	Opening ceremony, Meeting Host: Wenjun Liu By Jianwei Zhang (NUIST) and Pierre Auger (French Academy of Sciences & NUIST)			
<b>Invited Talks</b>				
Time	Speaker	Institution	Title	Chair
15:10-15:45	Yavar Khedmati	University of Mohaghegh Ardabili, Iran	Modular hybrid chaotic maps for image security transforms by discrete framelet transform, cellular automata and cyclic redundancy check	Anum Shafiq
15:45-16:20	Usman Malik	University of Science and Technology Beijing, China	The Role of Radiation and Bioconvection as an external agent to control the temperature and motion of liquid over the radially spinning circular surface: A theoretical analysis	
16:20-16:55	Muhammad Hamid	Fudan University, China	Fractional Calculus, History and Computational Methods for Fractional Differential Equations	Nan Liu (刘男)
16:55-17:30	Anum Shafiq	Nanjing University of Information Science and Technology, China	Impact of Soret and Dufour's convective heat transfer in nanofluid flow along moving needle with artificial neural network	

2021 国际数学与统计学青年学者藕舫论坛

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Mathematics and Statistics

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Dec 2 <sup>nd</sup> , 2021 (Statistics)				
From 09:00 China to 11:20 China				
(Tencent / Voov Meeting ID: 914-888-145)				
Invited Talks				
Time	Speaker	Institution	Title	Chair
09:00-09:35	Liang Dong (董梁)	University of Science and Technology of China, China	On Random Intersection Graphs: the largest component and the number of triangles	Ting Zhang (张婷)
09:35-10:10	Lidan He (何丽丹)	Nanjing University of Information Science and Technology, China	Large Deviation Principles of Realized Laplace Transform of Volatility	
10:10-10:45	Jun Jin (金君)	South Western University of Finance and Economics, China	Optimal Subsampling Algorithms for Composite Quantile Regression in Massive Data	Lidan He (何丽丹)
10:45-11:20	Ting Zhang (张婷)	Nanjing University of Information Science and Technology, China	Improved Multiple quantile regression estimation with nonignorable dropouts	

## 2021 国际数学与统计学青年学者藕舫论坛

2021 Oufang Forum for International Young Scholars in  
Mathematics and Statistics

(2021.12.1—12.2, online via Tencent / Voov Meeting)

Dec 2 <sup>nd</sup> , 2021 (Pure and applied mathematics)				
From 15:00 China to 17:55 China				
(Tencent / Voov Meeting ID: 914-888-145)				
Invited Talks				
Time	Speaker	Institution	Title	Chair
15:00-15:35	Rasool Hafezi	IPM-Isfahan Branch, Iran	Almost split sequences in the (mono)morphism category	Yi Zhang (张毅)
15:35-16:10	Matthew Randall	Nanjing University of Information Science and Technology, China	Flat (2,3,5)-distributions and Chazy's equation	
16:10-16:45	Jae Min Lee	Nanjing University of Information Science and Technology, China	Local well-posedness of the Camassa-Holm equation on the real line	Xueping Huang (黄学平)
16:45-17:20	Kai Yang (杨开)	Florida International University, USA	Numerical investigation of the generalized fractional KdV equations.	
16:20-17:55	Yan Li (李琰)	Nanjing University of Information Science and Technology, China	Regularity and existence of positive solutions for a fractional system	

## **Abstract and Speakers' Introduction**

**Modular hybrid chaotic maps for image security transforms**

**by discrete framelet transform, cellular automata**

**and cyclic redundancy check**

Yavar Khedmati Yengejeh

Department of Mathematics, University of Mohaghegh Ardabili, Ardabil, Iran

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With the development of social networks, the demand for information security transform is increasing day by day, and since images are among the most widely used formats, in this talk we present methods for image encryption and steganography based on a new modular hybrid chaotic maps, cellular automata and discrete framelet transform. The sensitivity of digital images to slight pixel changes and high similarity of pixels to neighboring pixels are important reasons for the importance of using chaotic maps in secure information transform algorithms. Therefore, defining a new chaos map is worth in improving the security of the proposed algorithm. Another important parameter in cryptographic algorithms is the generation of key space sensitive to input images and therefore one of our goals in this process is to use a cyclic redundancy check (CRC) in producing the appropriate key space.



Yavar Khedmati, Ph.D in pure mathematics-analysis at university of Mohaghegh Ardabili, Ardabil, Iran. He was as a guest Ph.D. student at Technical University of Denmark (DTU) under the direction of Professor O. Christensen for six months. His research interests include, Frame theory, General harmonic expansions and Image security transform.



# **The Role of Radiation and Bioconvection as an external agent to control the temperature and motion of liquid over the radially spinning circular surface:**

## **A theoretical analysis**

Usman Malik

University of Science and Technology Beijing, China

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The usage of nanoparticles is effectively increased in industries because of their high thermal performance. Moreover, the bioconvection phenomenon in nanomaterials leads to innovative biotechnology applications, such as biofuels, bio-sensors, the petroleum industry, etc. Because of the nanoparticle's exceptional performance and bioconvection phenomenon, the Magnetohydrodynamics bioconvection Reiner-Rivlin nanofluid flow is recently investigated over the rotatory stretchable disk containing the motile gyrotactic microorganisms. The heat and mass transport phenomenon with thermal radiation and activation energy is also investigated under convective-Nield's boundary conditions. The governing equations are solved numerically through the assistance of the Chebyshev spectral collocation method. The effects of the flow parameters on the boundary layer profiles are reported graphically. The graphical illustration elucidates that the dimensionless parameters have significantly affected the non-dimensional boundary layer profiles. The fluid velocity, temperature, concentration of nanoparticles and motile density of microorganisms are effectively controlled through the proper alteration of the pertinent parameters. Finally, the published research has successfully filled a gap in the existing literature.



Usman, a PhD fresh graduate from the Department of the Mathematics, School of Mathematics and Physics, University of Science and Technology Beijing, China. His main research area is computational and applied mathematics. He has published 16 SCI research articles in well-reputed journals.

## Fractional Calculus, History and Computational Methods for Fractional Differential Equations

Muhammad Hamid

Fudan University, China

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Understanding the concept of fractional operators, their involvement in real-world problems, and the development or extension of computational methods to deal with the solutions of nonlinear fractional models is the objective of the current talk. However, the worth of the operational matrices-based spectral methods assisted by orthogonal polynomials and some new operational matrices for integer/non-integer will be enclosed. The authenticity of the proposed methods is validated via convergence, error-bound, stability, and norms, while the graphs are illustrated for integer and non-integer orders. The applications of the methods for some nonlinear problems and comparative analysis with existing literature will be discussed. The mathematical algorithms are a computationally effective and efficient tool and could be extended for other physical problems of fractional or variable order.



Dr. Hamid completed his PhD degree on the Chinese Government scholarship from the School of mathematical sciences, Peking University, Beijing, China. He is currently working as a Postdoctoral researcher on an international exchange fellowship at the Department of mechanics and engineering sciences, Fudan University, Shanghai, China. He won many valuable academic awards during his stay at Peking University, including Outstanding Foreign Student by Ministry of Education China, Excellence Student Award by Peking University, Jiukun Scholarship, Scientific research and Excellent Graduate Student Award, by School of Mathematical Sciences Peking University. During the Postdoctoral research at FDU, he won the research funding from China Postdoctoral Science Foundation and International Exchange Program. His name has been included in the list of Top 2% productive scientists of the world by Stanford University.

His field of interest includes fluid mechanics, numerical and spectral methods for partial differential equations, fractional calculus, and differential equations in applied sciences. He has published more than 55 articles with a total impact factor > 210, total citation > 1400, H-index of 25. He has a teaching experience of 4 years and a research experience of 8 years.

## **Impact of Soret and Dufour's convective heat transfer in nanofluid flow along moving needle with artificial neural network**

Anum Shafiq

Nanjing University of Information Science and Technology, China

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In this study, forced convective heat and mass transfer of a nanofluid using the Buongiorno model and moving radially through a thin needle has been analyzed using the Runge - Kutta fourth order technique and the shooting approach. In order to analyze the thermo-diffusion and diffusion-thermo effects on the flow, Dufour and Soret effects have been investigated and the mass transport phenomenon has also been investigated by activation energy. Partial differential systems of the flow model have been obtained with the boundary layer approach and modified by using the appropriate transformations to be connected to nonlinear ordinary differential systems. Using the RK-4 strategy with a shooting strategy, a data set has been created for different flow scenarios, and using this data set, an artificial neural network model has been developed to predict skin friction coefficient, Sherwood number and Nusselt number values. 70% of the data used in ANN models developed with different numbers of datasets have been used for training, 15% for validation and 15% for testing. The results show that ANN models can predict skin friction coefficient, Sherwood number and Nusselt number values with error rates of -0.33%, 0.08% and 0.03% respectively.



Dr. Anum Shafiq Anum is serving as Associate professor at School of Mathematics and Statistics, Nanjing University of Information Science and Technology. Her research interests include Fluid Flow with Nanoparticles, Heat and Mass Transfer, Non-linear analysis, Boundary value problems, Bayesian Inference, and Series Solutions of Nonlinear Problems.

# On Random Intersection Graphs: the largest component and the number of triangles

Liang Dong

University of Science and Technology of China, China

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In this talk, we study the size of the largest component and the number of triangles of the random intersection graph  $G(n,m,p)$ . We get the law of large numbers and a central limit theorem for the largest component of the random intersection graph  $G(n, m, p)$ . Let  $T_n$  be the number of triangles in the random intersection graph  $G(n,m,p)$ . When the mean of  $T_n$  is bounded, we obtain an upper bound on the total variation distance between  $T_n$  and a Poisson distribution. When the mean of  $T_n$  tends to infinity, the Stein-Tikhomirov method is used to bound the error for the normal approximation of  $T_n$  with respect to the Kolmogorov metric.



Liang Dong, a PhD student in the department of Statistics and Finance at University of Science and Technology of China. His main research interests are limit theorems and random graphs. Two papers have been published.

## Optimal Subsampling Algorithms for Composite Quantile Regression in Massive Data

Jun Jin

Southwestern University of Finance and Economics, China

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For massive data, non-uniform subsampling algorithms are effective in reducing the computational burden. In this talk, we investigate optimal subsampling for composite quantile regression (CQR). We first establish asymptotic properties of the estimator from a general subsampling algorithm, and then derive two versions of optimal subsampling probabilities according to the L- and A-optimality criterion. Since the former does not depend on the densities of the responses, it is easy to implement. Based on the optimal subsampling probabilities, we develop an adaptive two-step algorithm and study asymptotic distributions and asymptotic optimality of the estimator from this adaptive algorithm. Furthermore, we propose a combining subsamples algorithm based on the optimal subsampling probabilities of the L-optimality criterion which has great scalability to utilize available computational resources. We use the combining subsamples algorithm to calculate standard errors for parameter estimators without estimating the densities of the responses, and it can significantly improve the estimation efficiency. Numerical studies on simulated and real data are conducted to assess and showcase the practical performance of our proposed methods. This is a joint work with Tiefeng Ma, Southwestern University of Finance and Economics, China and Shuangzhe Liu, University of Canberra, Australia.



Jun Jin received the B.S. degree in the Department of Mathematics from the Hefei University, China, the M.S. degree in the School of Mathematics and Statistic from the Guizhou University, China. He is currently a PhD student at Center of Statistical Research, School of Statistics of the Southwestern University of Finance and Economics, supervised by Dr. Tiefeng Ma. His research interests include big data analysis, robust regression, and statistical learning.

## Improved Multiple quantile regression estimation with nonignorable dropouts

Zhang Ting

Nanjing University of Information Science and Technology, China

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In this talk, we propose a two-stage efficient estimation procedure for multiple quantile regression (MQR) based on empirical likelihood approach that simultaneously accommodates both association among the multiple quantiles and within-subject correlations under nonignorable dropouts. To handle the identifiability issue, a part of covariates named as nonresponse instrument is used to estimate the dropout propensity. In the first stage, the inverse probability weighting and kernel methods are applied to construct the bias-corrected and smoothed generalized estimating equations to account for nonignorable dropouts. In the second stage, we borrow the matrix expansion idea of quadratic inference function to formulate within-subject correlations. The proposed estimators and their confidence regions for MQR coefficients are derived. The finite-sample performance of the proposed estimators is studied through simulation, and an application to HIV-CD4 data set is also presented.



Zhang Ting, School of Mathematics and Statistics, Nanjing University of Information Science and Technology. Her main research interests are Missing data and High dimensional statistical inference.

## Large Deviation Principles of Realized Laplace Transform of Volatility

Lidan He

Nanjing University of Information Science and Technology, China

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Based on scenario of high frequency data, consistent estimator of realized Laplace transform of volatility proposed by To. We investigate the asymptotic tail behaviour of the empirical realized Laplace transform of volatility (ERLTV). We establish both large deviation principle and moderate deviation principle for the ERLTV. The good rate function for the large deviation principle is well defined in the whole real space, which indicates a limit for the normalized logarithmic tail probability of the ERLTV. Moreover, we also derive the function-level large and moderate deviation principles for ERLTV



Lidan He, School of Mathematics and Statistics, Nanjing University of Information Science and Technology. She received her doctorate from University of Macau in 2021. Her main research interests are Financial Statistics and deep learning. She has published 2 papers in academic journals.

## Almost split sequences in the (mono)morphism category

Rasool Hafezi

IPM-Isfahan Branch, Iran

Email: hafezira@gmail.com

The almost split sequences are the main ingredient in the Auslander-Reiten theory. As the title says, I will talk about the structure of almost split sequences in the morphism category with certain ending terms. The morphism category of the module category of an Artin algebra is recalled to be a category whose objects are morphisms in the module category and its morphisms are given with commutative diagrams. I will also talk about the connection between representation-finite morphism categories and Dynkin diagrams. If time permits, I will define a kind of algebra including gentle algebras and more generally quadratic monomial algebras. Then the almost split sequences in the monomorphism category of the category of Gorenstein projective modules over such defined algebras are completely determined. My talk is based on my two recent works available on arXiv:2109.00467 and arXiv:2103.08883



Rasool Hafezi is now working as a visiting researcher in IPM-Isfahan Branch and will join the Math. Department of Nanjing University of Information Science and Technology as a new faculty member in 2022. His main research interests are representation theory of algebras, relative homology algebra and triangulated categories. He has published 32 papers.



## Flat (2,3,5)-distributions and Chazy's equation

Matthew Randall

Nanjing University of Information Science and Technology, China

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In the theory of generic 2-plane fields on 5-manifolds, or (2, 3, 5)-distributions, the local equivalence problem was solved by Élie Cartan who also constructed the fundamental curvature invariant. For these distributions described by a single function of the form  $F(q)$ , the vanishing condition for the curvature invariant is given by a 6th order nonlinear ODE. Furthermore, An and Nurowski showed that this ODE is the Legendre transform of the nonlinear ODE that appeared in Noth's thesis in 1904. We show that the 6th order ODE can be reduced to a 3rd order nonlinear ODE that is a generalised Chazy equation. The ODE in Noth's thesis can similarly be reduced to another generalised Chazy equation, which has its Chazy parameter given by the reciprocal of the former. As a consequence of solving the related generalised Chazy equations, we obtain additional examples of flat (2, 3, 5)-distributions.



The speaker studied mathematics in three continents and is currently interested in the interaction of integrable systems and conformal differential geometry and differential equations arising from such integrable systems. The speaker currently works at Nanjing University of Information Science and Technology.

## Local well-posedness of the Camassa-Holm equation on the real line

Jae Min Lee

Nanjing University of Information Science and Technology

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In 1966, Arnold showed that the incompressible Euler equation for an ideal fluid can arise as the geodesic flow on the group of volume preserving diffeomorphisms with respect to the right invariant kinetic energy metric. This geometric interpretation was rigorously established by Ebin and Marsden in 1970 using infinite dimensional Riemannian geometry and Sobolev space techniques. Many other nonlinear evolution PDEs in mathematical physics turned out to fit in this universal approach, and this opened vast research on the geometry and analysis of the Euler-Arnold equations, i.e., geodesic equations on a Lie group endowed with one-sided invariant metrics. In this talk, we will prove the local-wellposedness of the Camassa-Holm equation on the real line in the space of continuously differentiable diffeomorphisms, satisfying certain asymptotic conditions at infinity. Motivated by the work of Misio{\l}ek, we will re-express the equation in Lagrangian variables, by which the PDE becomes an ODE on a Banach manifold with a locally Lipschitz right-side. Consequently, we obtain the existence and uniqueness of the solution, and the topological group property of the diffeomorphism group ensures the continuous dependence on the initial data.



Jae Min Lee, an associate professor in the school of mathematics and statistics at Nanjing University of Information Science and Technology. Research interests in PDEs, Differential Geometry, and Integrable Systems.

## Numerical investigation of the generalized fractional KdV equations.

Kai Yang

Florida International University, USA

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We investigate behavior of solutions to the generalized fractional Korteweg-de-Vries (fKdV) equations on the real line. This includes the special cases for the usually generalized KdV equations, the Benjamin-Ono (BO) equations and also for all the KdV-type of equations with fractional Laplacian. We first developed the efficient and conservative numerical schemes with arbitrarily high order accuracy in time for this research. Then, the solution behaviors such as the soliton resolution conjectures (for  $L^2$  subcritical cases), blow-up/global existence dichotomy, and the blow-up solution structures are investigated via numerical point of view. The other direction of this research is proving the asymptotical stability (3d ZK) or instability (2d ZK) of solitons by analyzing the related spectral properties via the numerical approaches.



Dr. Kai Yang is now working as a Postdoc Associate in Florida International University and he received his Ph.D. degree from George Washington University in 2018. His main research interests are Numerical Analysis, Spectral method, Computational methods for nonlinear flows, Conservation Laws, Nonlinear PDE, Applied Fourier Analysis Wavelets.

## Regularity and existence of positive solutions for a fractional system

Yan Li

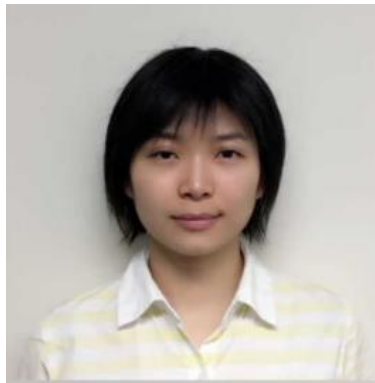
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We consider a nonlinear fractional elliptic system

$$\begin{cases} (-\Delta)^{\frac{\alpha_1}{2}} u(x) = f(x, u, v), & \text{in } \Omega, \\ (-\Delta)^{\frac{\alpha_2}{2}} v(x) = g(x, u, v), & \text{in } \Omega, \\ u = v = 0, & \text{in } \mathbb{R}^n \setminus \Omega, \end{cases}$$

where  $0 < \alpha_i < 2$ ,  $i=1, 2$  and  $\Omega$  is a bounded domain with  $C^2$  boundary in  $R^n$ . To overcome the technical difficulty due to the different fractional orders, we employ two distinct methods and derive the a priori estimates for  $0 < \alpha_i < 1$  and  $1 < \alpha_i < 2$  respectively. Moreover, combining the a priori estimate with the topological degree theory, we prove the existence of positive solutions.



Dr. Yan Li joined School of Mathematics and Statics at NUIST in September 2021. She received her Ph.D. degree from Yeshiva University in 2017. Then she was trained as a post-doctorate associate at Baylor University till 2021. Dr. Li identifies herself as a researcher interested in elliptic PDEs. Her current project is about problems involving non-local pseudo-differential operators.

## A Brief Introduction to the

# School of Mathematics and Statistics, Nanjing University of Information Science and Technology (NUIST), China



## About NUIST

NUIST, formerly named **Nanjing Institute of Meteorology**, was established in 1960 and enjoys the reputation as “the cradle of meteorological talents in China”.

**In 1978:** Listed as one of the 88 National Key Universities in China.

**In 2004:** Renamed as **Nanjing University of Information Science & Technology**.

**In 2017:** Selected as National “Double-First-Class” Construction University.

**Rankings:** #41 in Best Global Universities in China / #511 in Best Global Universities (U.S. News);

#50-71 in Mainland China / #401-500 in World-University-Rankings-2020 (ARWU).

**A<sup>+</sup>: Meteorology** was ranked Top 1 in subject assessment by the MOE and rated A<sup>+</sup> in China.

## About School of Mathematics and Statistics

The School of Mathematics and Statistics (SMS) in NUIST, is eligible to offer Master’s and PhD programs in **Mathematics**, Professional Master’s program in **Applied Statistics**, as well as postdoctoral positions of Mathematics. **Mathematics** is the key discipline of China Meteorological Administration.

The School also offers three undergraduate majors including Information and Computing Science, Applied Statistics, and Mathematics and Applied Mathematics, which are all key majors of Jiangsu Province, China. Information and Computing Science was selected as the **First-class** undergraduate major by the MOE.

**Rankings:** #30 in Mathematics **in China** / #166 in Mathematics (U.S. News);

# 49-75 in Mathematics **in mainland China** / #301-400 in Mathematics (ARWU).

**Faculty:** The School has personnel of highly qualified teachers with strong research capabilities. The School currently has over 110 faculty members, including 32 professors and 21 PhD supervisors, 41 associate professors / associate researchers.

**Honor & Awards:**

- Norbert Gerbier-Mumm International Award, World Meteorological Organization (2001)



- National Thousand Talents Program, Fok Ying-Tong Education Foundation, Distinguished Professor of Jiangsu Province, etc.
- Outstanding award in COMAP’s Mathematical Contest in Modeling (MCM) / Interdisciplinary Contest in Modeling (ICM) (2012, 2018, 2019)
- The only prize of the highest rank, namely the Higher Education Press Cup, in the National Mathematical Modeling Contest for undergraduates (2011)



- The first class award for National teaching achievement by the MOE (2014)
- The first class award for teaching achievement of Jiangsu Province (2011, 2017)
- Many awards as national brand curriculum, excellent curriculum of Jiangsu Province, key textbook of Jiangsu Province, excellent textbook of China Meteorological Administration

## Research in School of Mathematics and Statistics

### Research Areas and Features:

- We focus on the problem-driven theoretical research, and a strong research team has been formed in the fields of fluid dynamics, scientific calculation, statistical inference, time series, algebra and number theory, etc.
- We emphasize on the intersection and integration with the atmospheric sciences, develop mathematical technology to solve key problems in interdisciplinary research, and carry out extensive and in-depth research on the application of multiple linear models to typhoon diagnosis, the application of control theory to data assimilation, earth system model and other atmospheric mathematics, etc.

**Platform:** The National center for applied mathematics (jointly), the National virtual simulation experimental teaching demonstration center, the big data key laboratory of Jiangsu Province, 4 enterprise cooperative education platforms of MOE, and 5 enterprise postgraduate workstations of Jiangsu Province, which can provide excellent social resource for enhancing the students' innovation and enterprise ability.

**International and Industrial Collaboration:** On average, about 30 mathematicians or business experts from around the world visit the School each year for 2 to 4 weeks, conducting joint research with local mathematicians and statisticians, holding seminars, and making themselves available for consultation with students working in their area. Through teaching partnership and active cooperative research projects, the School has close ties with the industry such as Huawei and Neusoft.

**Fund:** In the past five years, the academic team of the School has received 55 National projects and 76 other level projects, including 973 Program, National Key Research and Development Program of China, Key Program of NSFC and so on, altogether 39.8 million (CNY).

**Publications:** More than 400 papers in SCI journals like **Trans. Amer. Math. Soc., Adv. Math., J. Funct. Anal., Sci. China Math., Arch. Ration. Mech. Anal., SIAM** journals, **IEEE** journals, etc, and more than 30 monographs and textbooks, in the past five years.

## Education in School of Mathematics and Statistics

**Aims:** Advancing mathematical and statistical knowledge through novel and insightful research. Training experts in not only mathematics but also other academic, industrial, and applied fields.

**International Joint Training Program:** International cooperation with **University of Reading, Florida State University, Carleton University**, etc., carrying out joint enrollment and training of undergraduate, master and PhD students, as well as regular academic exchanges.

**Employment and Further Education:** High quality employment rate is over 98.2%, including research, teaching and technology development in the field of government agencies, research institution, education, IT, meteorology, finances and so on. The rate of studying abroad as a postgraduate is over 30%, and many graduates have been enrolled in domestic and foreign famous universities such as **Cornell University, University of Edinburgh, Columbia University, Imperial College London, Tsinghua University, Chinese Academy of Sciences**, etc.

**Future of Our Students:** The School cultivates a number of prominent alumni including “1,000 Talents Plan” and tenured professors in USA and European countries, and makes important contributions in the field of numerical prediction, climatic statistics, data assimilation and the application of differential equation, etc.

**Website:** <https://math.nuist.edu.cn/3305/list.htm>      **Email address:** [sms@nuist.edu.cn](mailto:sms@nuist.edu.cn)



祝您生活愉快!

Wish you a happy life.